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EXECUTIVE SUMMARY OF THE
NATIONAL COMMUNICATION OF

PORTUGAL

submitted under Articles 4 and 12 of the
United Nations Framework Convention on Climate Change

In accordance with decision 9/2 of the Intergovernmental Negotiating Committee of the Framework Convention on Climate Change, the interim secretariat is to make available, in the official languages of the United Nations, the executive summaries of the national communications submitted by Annex I Parties.

Note: Executive summaries of national communications issued prior to the first session of the Conference of the Parties bear the symbol A/AC.237/NC/___.

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Copies of the national communication of Portugal
can be obtained from:

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NATIONAL CONTEXT

1. Portugal is located on the extreme Southeastern point of Europe with a coastline of approximately 800 kilometres and shares a 1,200 kilometre border with Spain. It also has two archipelagoes, Madeira and the Azores, in the Atlantic Ocean.

2. It has a temperate climate with average annual temperatures of between 10°C and 20°C. The average annual rainfall varies between 3,100 mm in the mountainous inland Northern regions and 400 mm on the Southern coast.

3. There were approximately 9.9 million inhabitants in Portugal in 1992 after the occurrence of growth during the eighties. National territory is mainly characterized by various medium sized centres, a significant dispersion of small communities and the two metropolises of Lisbon and Oporto which, as a whole, account for 38 per cent of the citizens on the mainland. On the other hand, 20 per cent of the population live in communities of less than 200 inhabitants.

4. The major cities of Lisbon and Oporto are responsible for around 50 per cent of gross domestic product (GDP) with 80 per cent of employment being concentrated along the Central/Northern coastal area of the Country.

5. Approximately 45 per cent of the mainland territory is used for agricultural purposes. There has been an expansion occurring in areas used for permanent crops as opposed to arable soil. Forests and other arboreal plantations cover approximately 36 per cent of the territory, mainly in the form of Scotch Pine, Hispania Oak, Holm Oak and Eucalyptus. Animal breeding is respectively split up among, fouls, pigs, cows and goats.

6. The national economy during the eighties was characterized by two different stages. The first stage, particularly during the 1982/1990 period in which there was an approximate drop of 2 per cent in GDP per annum and a second, between 1985/1990 in which GDP grew at an average rate of 5 per cent per annum which was one of the highest rates in the Organisation for Economic Co-operation and Development (OECD) although GDP per capita is still one of the lowest.

7. There was a considerable improvement in the unemployment and inflation indicators in 1992 which were respectively 4.1 per cent and 8.9 per cent. A significant contribution was made by Portugal's membership of the European Community in 1986 which helped to reinforce the means for compensating economic insufficiency and re-dimension economic activity and professional training.

8. Trade accounts for 28 per cent of GDP with the share of imports of semi finished and capital goods being 74 per cent with 11 per cent for energy products. Exports are still concentrated on traditional products.

9. Employment for the active population is around 35 per cent in the industrial and 20 per cent in the agricultural sectors.

10. Housing, in 1992, had very high rates of coverage ($\geq$ 94 per cent) for water and electricity and slightly lower rates for sanitary installations. There is still a certain degree of imbalance in interior regions.

11. Energy consumption in Portugal is heavily dependent on foreign sources ($>$ 80 per cent), mostly in the form of oil products ($\geq$ 70 per cent). There was an average annual growth of 5.9 per cent during the 1985/1990 period, particularly in the transport and residential/services sectors. Energy intensity is, however, far higher than the average for OECD countries in spite of the efforts being made to encourage the more efficient use of energy.

12. The rate of growth of vehicle usage, albeit having expanded very quickly, is still lower than the OECD average. The growth in the number of vehicles and traffic has been more marked in the private transport sector, both for private use and the carriage of goods although rail transport, as yet, is not as significant as it should be.

INVENTORIES

Anthropogenic Emissions

13. A national inventory was prepared for 1990 on the emissions of sulphur dioxide (SO_2), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOC), methane (CH_4), carbon monoxide (CO), carbon dioxide (CO_2), ammonia (NH_3) and nitrous oxide (N_2O) using the methodology approved by the CORINAIR project, developed by the European Union Commission. These estimates for the different categories of sources, which were compiled for the CORINAIR inventory, were grouped together or, when necessary, split up, in order to obtain the data in the format proposed by the Intergovernmental Panel on Climate Change (IPCC).

14. The results have been summarized in Table 1 from which it can be concluded that combustion procedures, in Portugal, were the main sources of the emission of gases responsible for the greenhouse effect.

15. The only exception is CH_4 with a total emission of 227Kt, whose principal sources of emission are essentially in the agricultural sector although the contribution of the processing and deposition of wastes has not played an inconsiderable role.

16. Reference should be made to the contribution ($>$90 per cent) of NO_x, CO and CO_2 to combustion processes. Total emissions were 2145Kt, 1*MT* and 42*MT* respectively in which transport accounts for a considerable proportion.

Table 1 Results of the inventories of gases responsible for the greenhouse effect

Categories	Emission Estimates (Gg of full mass of pollutant)					
	NOx	NMVOC	CH_4	CO	CO_2	N_2O
NATIONAL NET EMISSIONS	214,5	199,5	226,7	1 082,6	42 148,4*	10,6
1A FUEL COMBUSTION	210,1	109,4	13,0	1 072,0	38 686,3*	5,0
1A1 Energy Transformation Activities	59,6	11,3	2,4	68,2	19 386,3*	3,0
1A2 Industry (ISIC)	17,8	3,0	2,1	264,3	6 079,0*	1,4
1A3 Transport	108,6	81,4	1,4	614,1	9 946,5*	0,4
1A4 Commercial - Institutional	1,6	5,6	3,7	63,2	1 045,0*	0,1
1A5 Residential	1,4	4,8	3,2	53,8	891,0*	,1
1A6 Agriculture-Forestry	21,1	3,4	0,2	8,4	1 338,1*	0,0
1A7 Other	NA	NA	NA	NA	NA	NA
BIOMASS COMBUSTION FOR ENERGY	11,1	12,7	8,3	436,0	6 773,5	0,7
TRADITIONAL BIOMASS COMBUSTION FOR ENERGY	NA	NA	NA	NA	NA	NA
1B FUGITIVE FUEL EMISSIONS	NA	7,6	2,0	NA	NA	NA
1P1 Crude Oil Production	NA	7,6	0,0	NA	NA	NA
1B2 Coal Mining	NA	NA	2,0	NA	NA	NA
2 INDUSTRIAL PROCESSES	4,4	15,4	0,4	10,7	3 462,1	1,9
2A Iron and Steel	NA	0,1	NA	10,7	35,0	NA
2B Non Ferrous metal	NA	NA	NA	NA	2,7	NA
2C Inorganic Chemicals	1,7	1,4	0,4	0,0	277,5	1,9
2D Organic Chemicals	NA	4,7	0,0	NA	NA	NA
2E Non Metallic Mineral Products	NA	NA	NA	NA	3 140,2	NA
2F Other (ISIC)	2,6	9,2	0,0	0,0	6,7	0,0
3 SOLVENT USE	NA	67,1	0,0	NA	NA	NA
3A Paint Application	NA	26,3	0,0	NA	NA	NA
3B Degreasing and Dry Cleaning	NA	2,4	0,0	NA	NA	NA
3C Chemical Products Manufacture or Processing	NA	6,3	0,0	NA	NA	NA
3D Other	NA	32,2	0,0	NA	NA	NA
4 AGRICULTURE	NA	NA	176,3	NA	NA	3,6
4A Enteric Fermentation	NA	NA	104,8	NA	NA	NA
4B Animal Wastes	NA	NA	58,6	NA	NA	NA
4C Rice Cultivation	NA	NA	12,9	NA	NA	NA
4D Agricultural Soils	NA	NA	0,0	NA	NA	3,6
4E Waste Burning	NQ	NQ	NQ	NQ	NQ	NQ
4F Savanna Burning	NA	NA	NA	NA	NA	NA
5 LAND USE CHANGES	NQ	NQ	NQ	NQ	NQ	NQ
6 WASTES	NA	NA	35,2	NA	NA	NA
6A Landfills	NA	NA	33,4	NA	NA	NA
6B Wastewater	NA	NA	1,8	NA	NA	NA
6C Other	NA	NA	NA	NA	NA	NA

* Does not include emissions from combustion of biomass
NA - Not applicable
NQ - Not quantified

17. In the case of NMVOC, whose total emissions were around 200Kt, reference should be made to industrial processes and the use of solvents as major factors, whereas in the case of N_2O, combustion and agricultural processes were major contributing factors for the emission of 10Kt in 1990.

18. These results do not include emissions from the use of fuel by aircraft and marine transport which, although having been calculated (see table 1) have not been included in the national totals.

Sinks

19. Portuguese agriculture, owing to its level of development in comparison to the agriculture of the rest of the European Union (EU) has low emissions levels of pollutants and a reasonably satisfactory situation with regard to the concentration of CO_2.

20. Accordingly, although of significant national importance with regard to emissions of CH_4 and N_20, its contribution to the annual concentration of CO_2 of 70.4*MT* represents a reasonably positive factor.

POLICIES, MEASURES AND EFFECTS

Agricultural Sector

21. The European Union's current common agricultural policy is targeted at reducing incentives to agricultural production, and therefore, several support measures which have been introduced, that is, those concerned with environmental protection, encourage the extending of vegetable production and animal breeding activities, therefore reducing emissions.

22. Forestry measures, on the other hand, by encouraging the maintenance, expansion and protection of forests, will help to reduce or stabilise the levels of CO_2 in the atmosphere owing to their important roles as sink-holes.

Energy Sector

23. The major energy sector policies which have been put into practice are, in general, compliance with the policy objectives of environmental protection and encompass three major priorities:

- An increase in diversification and energy efficiency in all sectors of economic activity;
- The use of clean technologies in the burning of fossil fuels;
- Greater use of renewable resources.

24. The main areas of activity to be put into practice in the energy sector, include:

- The introduction of natural gas for the production of electricity and end use starting in 1997;
- The combined production of heat and electricity in various industrial subsectors;
- An increase in the use of renewable energy sources for energy production;
- Improvements in the efficiency of thermal power stations and electricity transmission facilities;
- The more rational use of energy in all end user sectors.

Industrial Sector

25. Portuguese industry has, during the first five years of its membership of the European Union, accompanied the rate of growth of GDP, although there have been major regional asymmetries -- a greater concentration of production and employment in the Northern, Central and Lisbon and Tagus Valley Regions -- and a significant degree of vulnerability to outside forces, resulting from the fact that the manufacturing sector is dominated by the traditional, labour intensive, high energy consuming sectors.

26. Reference should be made to the fact that there are signs of a broadening of the industrial specialization base, taking into account the major activity of the metal and electrical material sectors as well as several production sectors such as wood and cork, ornamental stones and automobiles.

27. Today's industrial development model includes living and environmental standards which attempt to emulate the current worldwide development model.

Surface Transport Sector

28. There was a considerable expansion in the number of vehicles during the eighties which was a period of major growth although the numbers are still below the average OECD levels.

29. The vehicles/kilometre ratio indicates a total increase in traffic of 67 per cent. This has caused an approximate 58 per cent rate of growth in fuel consumption in the eighties.

30. Demand for the various means of surface transport, has concentrated on road as opposed to rail transport although the opposite is expected to be the case in the future, as policy measures in the sector are targeted at strengthening the competitiveness of rail transport.

31. Important investments in both road and rail infrastructures have been made and more are expected. This will be particularly the case with international connections and in respect of the network of inter and multi-modal terminals and interfaces.

PROJECTIONS OF CO_2 EMISSIONS

32. Activities for the production and use of energy are the major anthropogenic sources of pollutants responsible for the greenhouse effect.

33. Based on an energy demand situation which has been prepared on the basis of the most probable development scenario, Portugal has prepared CO_2 emission projections resulting from combustion for the years 1995 and 2000 the results of which are set out in the following table.

Table 2
Projections for CO_2 emissions in Gg produced by combustion (Category 1A)

CATEGORIES	1990	1995	2000
1A Fuel combustion	38 686	46 024	54 274
1A1 Energy Transformation Activities	19 386	21 180	24 308
1A2 Industry (ISIC)	6 079	7 143	8 911
1A3 Transport	9 946	13 389	16 140
1A4 Commercial - Institutional	1 045	1 273	1 404
1A5 Residential	891	1 085	1 196
1A6 Agriculture - Forestry	1 339	1 953	2 315

Source: Institute of Meteorology
Rates of Growth supplied by Directorate General for Energy (DGE)

These scenarios form part of the measures considered expedient for containing the growth in CO_2 emissions, allowing Portugal to fulfil the objective (an increase of 40 per cent) accepted by it in accordance with the terms of the Community framework strategy for the control of CO_2 emissions.

CLIMATIC VULNERABILITY AND ADAPTATION MEASURES

34. The occurrence, in Portugal, of natural disasters of a meteorological or seismic nature, albeit infrequent, is capable of causing significant socioeconomic incidents.

35. Although with different degrees of vulnerability to natural catastrophes all regions to a greater or lesser extent are subject to the occurrence of one type or another with the resulting loss of life, environmental alterations and major material losses.

36. It is in cooperation with international bodies such as the IPCC that a great deal of attention has been paid and care taken on the study of climate changes, based on the work for the studies of socio-economic impacts and the corresponding formulation of strategies for reducing vulnerability.

TECHNICAL AND FINANCIAL RESOURCES

37. Portugal is, since 1992, a member of the pilot stage of the Global Environmental Fund (GEF) with an escudo contribution of 4.5 million special drawing rights (SDR).

38. The necessary internal legal measures are being prepared for the second stage of GEF and the Portuguese Government has formally undertaken to make an escudo payment equivalent to the sum of 4 million SDR. The contribution in question represents more than double Portugal's amount of the "burden-sharing" negotiated for the reconstitution of the GEF.

39. At the Rio Summit Conference, the European Community, under the Portuguese Presidency, undertook to make a contribution of 3 billion ECU for supporting projects to be included as part of the framework of Agenda 21. The member States provided an indication of the amount in question, with the Portuguese contribution being 17 million ECU over a five year period.

40. It was later decided within the group for cooperation and development that the Portuguese annual contribution would be around 2.6 million ECU to be paid for out of the State budget.

41. Reference should be made to the fact that Portugal is participating in a wide range of regional and international financial institutions and organizations whose objective is to provide assistance to developing countries. Reference should be made, inter alia, to participation in the institutions of the World Bank, of the African Development Bank and of the Inter-American Development Bank, in the European Bank for Reconstruction and Development, in the European Investment Bank and in the European Development Fund.

42. In budget terms, the Portuguese contributions to the above referred to institutions and organizations in 1994 will be around 6 thousand million escudos.

43. In bilateral terms and from a regional viewpoint, the main beneficiaries of Portuguese aid will be Portuguese speaking African countries with Mozambique being the main beneficiary of this aid.

44. In budget terms, Portuguese support for the above mentioned objective in 1994 was approximately 8 thousand million escudos.

45. The preservation of and improvement to the environment represent important aspects in living standards and well being. The programme of the 12th constitutional Government has proposed, as an objective for sustained, harmonious and ecologically balanced economic development that "special attention be paid to the principles of prevention and solidarity, in order to identify environmental problems at source".

RESEARCH AND SYSTEMATIC OBSERVATION

46. The problem of climate alterations, resulting from complex phenomena, the dimension of which nowadays has the unprecedented originality of the added influence of global anthropogenic activities, affects all countries.

47. The activities which have, or are to be carried out in this area are concentrated on the following aspects:

- the improvement of observation networks and setting up of new networks with the objective, inter alia, of carrying out research in the field of climate alterations;

- increasing knowledge of the composition of the atmosphere and preventing reductions to the stratospheric ozone layer;

- encouraging the use of the best available, economically viable technologies with the objective of reducing atmospheric emissions and increasing the efficiency of processes for making the most use of resources and the economy of means available;

- publicizing the existence of existing economic mechanisms for encouraging the rational use of energy and technological modernization in the productive sector;

- evaluating the potential of renewable energy sources;

- preparing inventories of emissions and structuring climatological information and information on the quality of the air with the objective of supplying the development of correlational models for the evaluation of cause and effect with climate alterations as a reference.

EDUCATION, TRAINING AND INFORMATION

48. The subject of climate alterations is not a specific course in primary and secondary education. The multi-disciplinary character, however, of environmental education has permitted the inclusion of these themes in various curriculae which, in the case of higher education, is dealt with by specialist studies in various degree level courses.

49. The translation of the text of the agreement has been widely publicized in brochures and expositions.

50. Awareness campaigns and training activities have been designed and developed and directed towards special targets and the public in general, particularly students.

INTERNATIONAL COOPERATION

51. Special reference should be made to the improvements in the relationship between Portugal and Portuguese speaking African countries through the dissemination of the Portuguese version of the framework agreement, in addition to cooperation with Africa in which special reference should be made to the projects with Southern African Development Conference (SADCC):

- Crop and phytogenetic databases, geographical databases for environmental purposes, support for the administrative technical unit for the energy sector (with head offices in Luanda), support for the water survey for hydroelectric applications in the Zambese basin and the study of the Cuneme basin.

52. This cooperation takes various forms, both instrumental (in strengthening the external position of the Portuguese State) and historical and with public aid for development in which Portugal is a member of the group of European Union donor countries (Lomé IV Convention), the Committee for the support of OECD development, UNO agencies, Bretton Woods Institutions and the African Development Bank.

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